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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10 065,380	10/10/2002	Yuan-Liang Wu	JCLA8066	1017

23900 7590 07/09/2003

J C PATENTS, INC.
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EXAMINER

TRAN, LONG K

ART UNIT PAPER NUMBER

2818

DATE MAILED: 07/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,380

Applicant(s)

WU ET AL.

Examiner

Long K. Tran

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amdt B on June 11, 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 9-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. This office action is in response to Amendment filed on June 11, 2003.
2. Claims **8, 16** and **18** have been amended in Paper No. **5**.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims **1 – 6, 8** and **17 – 18** are rejected under 35 U.S.C. 102(e) as being anticipated by Kawahata (US Patent No. 6,356,318).

Regarding claim **1**, figures 4, 5 and 6 illustrate an unit cell in a liquid crystal display device, the unit cell comprising: a first capacitor electrode 7' on a substrate 1; a capacitor dielectric layer 10 on the first capacitor electrode; a second capacitor electrode 15 on the capacitor dielectric layer, wherein the second capacitor electrode has a surface area smaller than the first capacitor electrode, to prevent overlapping with edges of the first capacitor electrode (especially in figure 4); a passivation layer 16 on the second capacitor electrode, wherein the passivation layer has an opening 18 that exposes a portion of the second capacitor electrode; and a pixel electrode layer 19 on the passivation layer such

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that the pixel electrode layer and the second capacitor electrode are electrically connected through the opening in the passivation layer.

Regarding claim **2**, figures 4, 5 and 6 illustrate an overlapping region between the first capacitor electrode and the second capacitor electrode is substantially equal to the surface area of the second capacitor electrode.

Regarding claims **3 – 5**, Kawahata discloses the pixel electrode is connected to a switching element; the pixel electrode is connected to a thin film transistor; and the pixel electrode is connected to a common voltage (figs. 1 – 8; col. 1, lines 37+; col. 2 lines 1 – 48).

Regarding claim **6**, figures 4, 5 and 6 illustrate a storage capacitor structure in a unit cell of a liquid crystal display device, the storage capacitor structure comprising: a first capacitor electrode 7' on a substrate 1; a capacitor dielectric layer on the substrate 10; and a second capacitor electrode 15 on the capacitor dielectric layer, wherein the edges of the second capacitor electrode are bounded within the edges of the first capacitor electrode (especially in figure 4).

Regarding claim **8**, Kawahata discloses the claimed invention of claim 6. However, Kawahata does not explicitly teach when a residual conductive material is distributed along the edges of the first capacitor electrode, the residual conductive material will not come in contact with the edges of the edges of the second capacitor electrode so that an electrical short between the second capacitor electrode and a neighboring scan line can be prevented. Kawahata capacitor structure's is identical as claims 6 and 8. Therefore, it is inherent that Kawahata device also greatly reduces the electrical short between the

second capacitor electrode and the signal line when a residual conductive material is distributed along the edges of the first capacitor electrode because the residual conductive material will not come in contact with the edges of the edges of the second capacitor electrode.

Regarding claim **17**, figures 4, 5 and 6 illustrate a storage capacitor comprising: a first capacitor electrode 17' disposed on a substrate 1; a capacitor dielectric layer 10 on the first capacitor electrode; a second capacitor electrode 15 disposed substantially over the first capacitor electrode electrically connected to a pixel electrode 19; wherein an area of the second capacitor electrode normally projected on the plane of the first capacitor electrode is substantially bounded within an area of the first capacitor electrode (especially in figure 4) . However, Kawahata does not explicitly teach to prevent electrical short between the second capacitor electrode and the signal line. Kawahata capacitor structure's is identical as claim 17. Therefore, it is inherent that Kawahata device also greatly reduces the electrical short between the second capacitor electrode and the signal line.

Regarding claim **18**, figures 4, 5 and 6 illustrate a storage capacitor comprising: a first capacitor electrode disposed on a substrate 1 of the liquid crystal device and having a first area with respect to a plan view of the first capacitor electrode 17'; a second capacitor electrode 15 disposed substantially over the first capacitor electrode and having a second area with respect to a plan view of the second capacitor electrode (especially in figure 4); and dielectric means 10 between the first capacitor electrode, with respect to the plan view thereof, is substantially within the first area of the first capacitor electrode.

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Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim **16** is rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art (AAPA) in view of Kawahata (US Patent No. 6,356,318).

Regarding claim **16**, the AAPA discloses a liquid crystal display device, comprising: a plurality of scan lines; a plurality of signal lines; and a plurality of pixels each including a liquid crystal cell having a pixel electrode connected to a storage capacitor and a switching element connected between the liquid crystal cell and one of the signal lines, a gate of the switching element being connected to one of the scan lines; wherein a first capacitor electrode, a capacitor dielectric layer and a second capacitor electrode together form the storage capacitor. However the AAPA does not teach an area of the second capacitor electrode is smaller than an area of the first capacitor electrode so that edges of the second electrode do not overlap with edges of the first capacitor electrode.

Kawahata discloses a first capacitor electrode 7' on a substrate 1; a capacitor dielectric layer 10 on the first capacitor electrode; a second capacitor electrode 15 on the capacitor dielectric layer, wherein the second capacitor electrode has a surface area smaller than the first capacitor electrode, therefore are no overlapping of second capacitor electrode's edges with the edges of the first capacitor electrode (especially in figure 4); It would have been obvious to one having ordinary skill in the art at the time the invention

was made to make the AAPA device with an area of the second capacitor electrode is smaller than an area of the first capacitor electrode so that edges of the second electrode do not overlap with edges of the first capacitor electrode as taught by Kawahata in order to increase capacitance per unit area of the storage capacitors and to prevent problems caused by conductive residual materials.

Response to Arguments

7. Applicant's arguments with respect to claims **1- 6, 8 and 17** (102 (e) rejections) and claim **16** (103 (a) rejection) have been fully considered but they are not persuasive.

Kawahata is silent about the upper (second) capacitor electrode having a surface area smaller than the lower (first) capacitor electrode surface. However, figures 4, 5 and 6 clearly illustrate the upper (second) capacitor electrode¹⁵ having a surface area being smaller than an area of the lower (first) capacitor electrode and being bounded within the edges of the lower capacitor electrode 7' (especially in figure 4). Kawahata capacitor structure's is identical as claims 1 – 6, 8, 16 and 17. Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to recognize that Kawahata's device could have solve problems caused by the residual conductive materials. For the above reasons, it is believed that the rejections should be sustained. Feature of an invention not found in the claims can be given no patentable weight in distinguishing the claimed invention over the prior art.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long K. Tran whose telephone number is 703-305-5482. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7466 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3329.

Long Tran

June 26, 2003



David Nelms
Supervisory Patent Examiner
Technology Center 2800